

High-Definition Multimedia Interface

Version 2.0

Quantum Data MOI v1.2a

Test ID: HF3-22

December 8, 2015

Preface

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Document Revision History

1.2a	December 8, 2015	Updated diagrams to reflect proper test setup, proper test equipment and to include additional test screens that appear throughout the test.
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Contact Information

The URL for the HDMI Forum web site is: <http://www.hdmiforum.org/>

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Introduction

This document provides a set of Method of Implementation for test method described in HDMI Compliance Test Specification Version 2.0 (HDMI CTS 2.0). HDMI Forum created HDMI CTS 2.0 to specify a set of tests that should be performed to verify features described in HDMI Specification Version 2.0a.

Scope

This document provides testing procedures for HDMI CTS 2.0 Test ID HF3-22: “Repeater Repeated Output Port Source Functionality HDR”. The procedure below deals with single resolution and only one Test ID is considered at a time.

References

Normative References

High-Definition Multimedia Interface Specification Version 1.4b, October 11, 2011.
HDMI Compliance Test Specification Version 1.4b, October 11, 2011.
High-Definition Multimedia Interface Specification Version 2.0a, March 19, 2015.
HDMI Compliance Test Specification Version 2.0,

Informative Reference

No additional informative references.

Test ID HF3-22: Repeater Repeated Output Port Source Functionality HDR

Objective

Confirm that the Source “generator” functionality contained within a Repeater is compliant.

This test is applied if the CDF field of both Repeater_HDR and Repeater_Source_Fn_HDR are “Y”.

This test will be performed using the full Source CDF form describing the tested Source (“generating”) function, under the condition where no upstream HDMI device is connected to ensure that only the internal source function and not the repeater function is being tested.

Capability(s)

The Source function of the Repeater DUT supports any High Dynamic Range content transmission.

Procedure

1. Perform Test ID HF1-53

Vendor Specific Test Procedure

Test Equipment

A variety of equipment is needed for testing HDMI products. Each piece is authorized and included by name in this Compliance Test Specification. This section describes the Quantum Data test equipment.

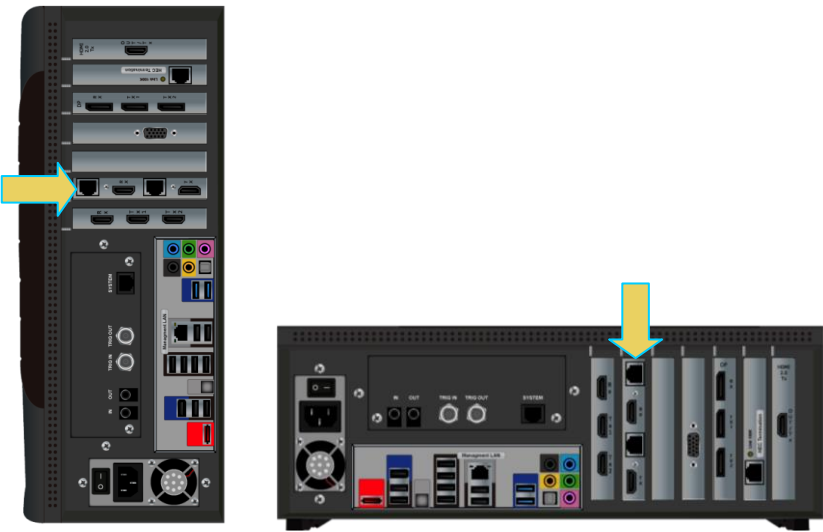
HDMI 1.4 Protocol Analyzer module

The Quantum Data 980 HDMI 1.4 Protocol Analyzer module can be installed in the 980B or 980R series Advanced Test Platforms. This 980 HDMI 1.4 Protocol Analyzer module serves the generic test functions called out in the HDMI 2.0 Generic CTS. Refer to the table below:

Item	Quantum Data Equipment	
1	980 Advanced Test Platform series:	
	Equipped with:	980 HDMI 1.4 Protocol Analyzer module
		HDMI CTS 2.0 Compliance Test Package #1 or #3

980 HDMI 1.4 Protocol Analyzer Module with 980 Series Platform Configurations

The figures below show depictions of the 980 HDMI 1.4 Protocol Analyzer module equipped in various 980 series platforms. **Note:** Card positioning may vary depending on configuration.



Source Dynamic Range and Mastering InfoFrame – High Dynamic Range

Test ID HF1-53: Source Dynamic Range and Mastering InfoFrame – High Dynamic Range

1. Objective

Confirm that the Source DUT sends the Dynamic Range and Mastering InfoFrame when it is sending HDR content.

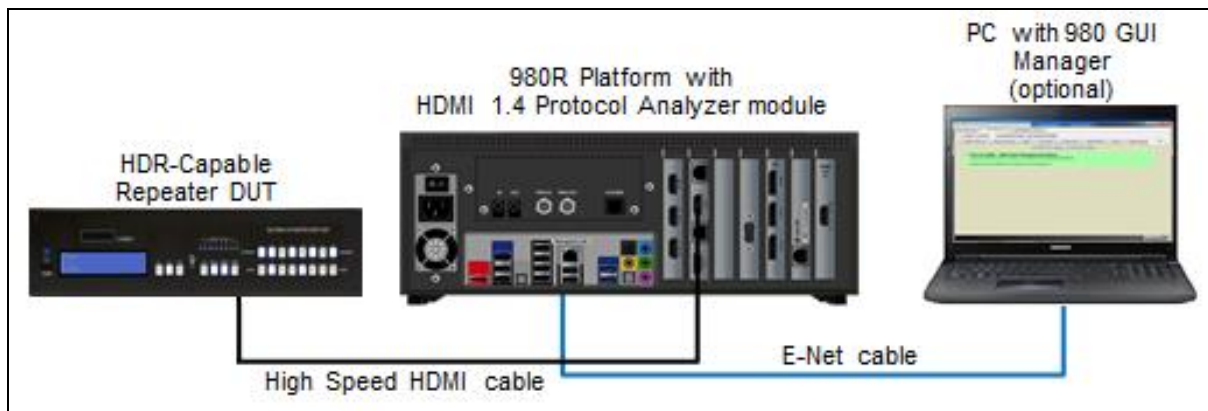
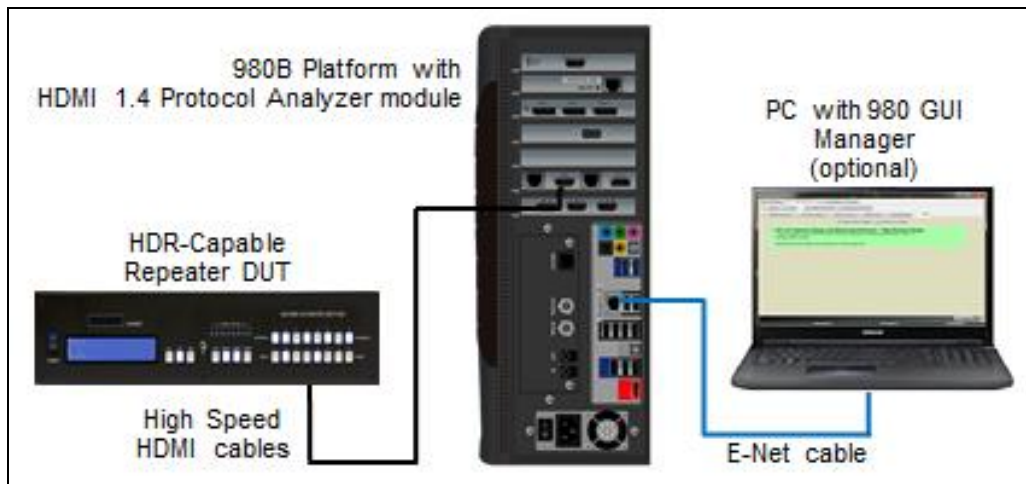
2. Test Overview

The Pass/Fail criteria is assessed by the application with no human examination required.

3. Procedure

Use the following procedure to conduct this test.

- 1 Connect HDR Repeater DUT output to the Quantum Data 980 HDMI 1.4 Protocol Analyzer at the module's port labeled Rx as shown below. Use a High Speed HDMI cable. The figures below show depictions of connections to the 980 HDMI 1.4 Protocol Analyzer module residing in the 980B and 980R series chassis.



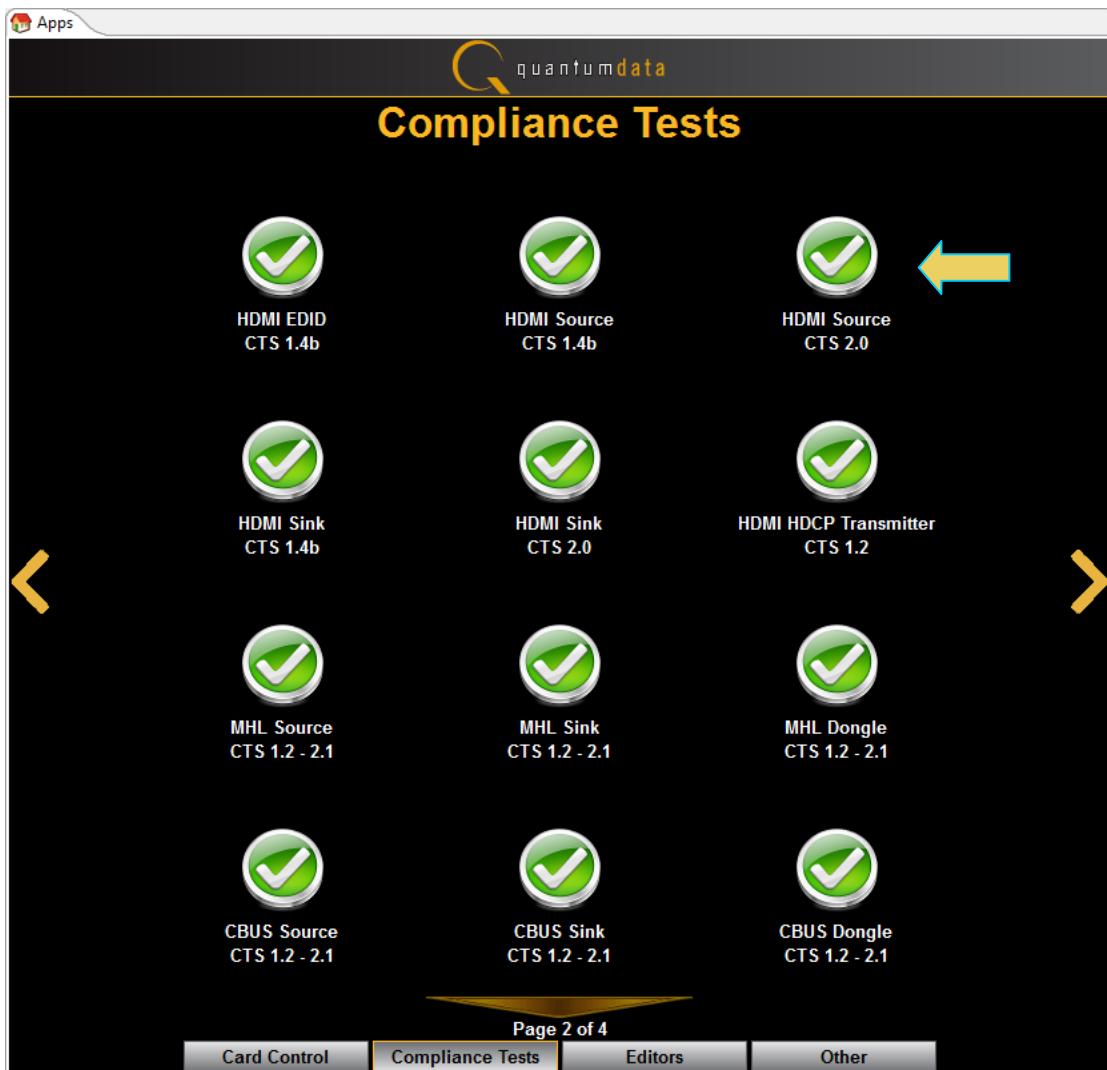
- 2 Operate the Repeater DUT to output the supported format and content.

- 3 Use Quantum Data 980 Embedded Manager GUI (touchscreen) or invoke Quantum Data 980 External Manager GUI (Windows application).

Note: You will not need to connect the PC shown in the figures above if you are running the compliance test through the 980's embedded display. The PC running the 980 HDMI 1.4 Protocol Analyzer module's compliance test application is connected to the 980 through a standard Ethernet cable.

- 4 Complete the following steps:

- 4.1 Click on the HDMI Source CTS 2.0 icon in the Compliance Tests page of the Apps panel.



- 4.2 Navigate to the CDF tab if not already there. If there is a saved CDF file, then click on Open and select it. Otherwise, enter the DUT's CDF information for each tab and optionally click on Save to save the CDF.

HDMI 2.0 Src CT 2.0

CDF Entry Test Selection Test Options / Preview

Open New Save CDF File: <not saved>

General Y420 Video 21:9 (64:27) Video 6G Video non2160p Timings Read Request HDR

Source_HDR Does the product support any High Dynamic Range Video?
☒ Yes ☐ No

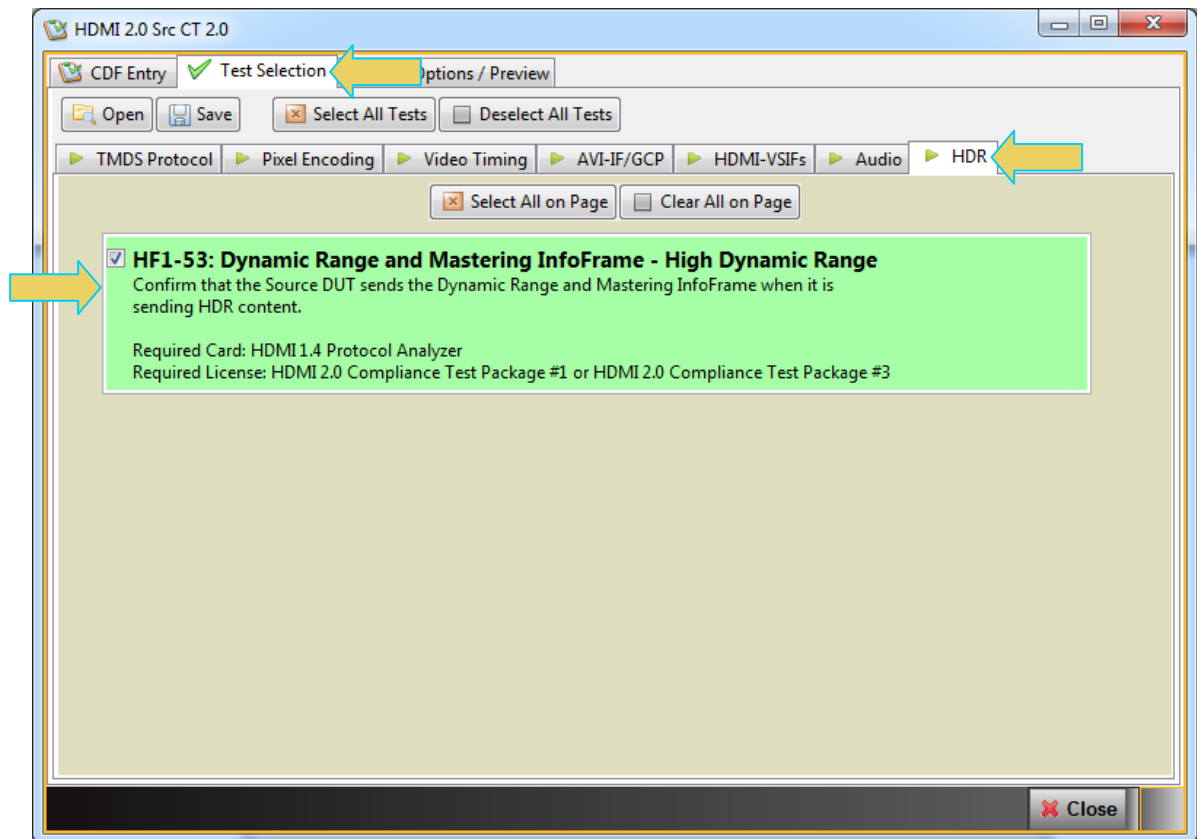
Source_HDR_Traditional_SDR Does the product support Traditional Gamma SDR Luminance Range of High Dynamic Range Video?
☒ Yes ☐ No

Source_HDR_Traditional_HDR Does the product support Traditional Gamma HDR Luminance Range of High Dynamic Range Video?
☒ Yes ☐ No

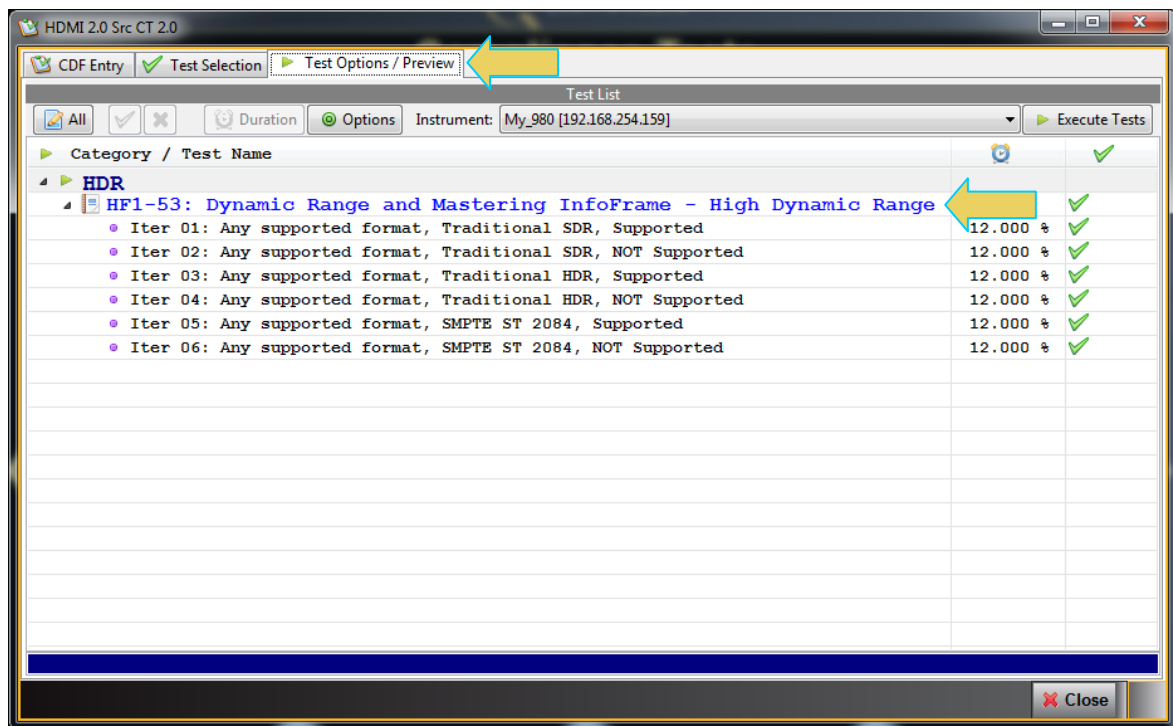
Source_HDR_SMPTE_ST_2084 Does the product support SMPTE ST 2084 of High Dynamic Range Video?
☒ Yes ☐ No

Close

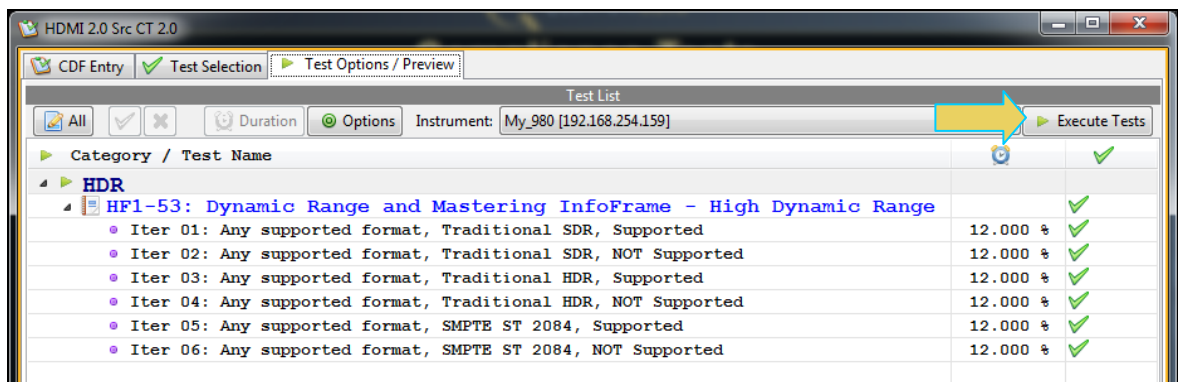
- 4.3 Click on the Test Selection tab and the Video Timing sub tab and select the Test ID HF1-53: Source Dynamic Range and Mastering InfoFrame – High Dynamic Range Test. Refer to the sample screen below.



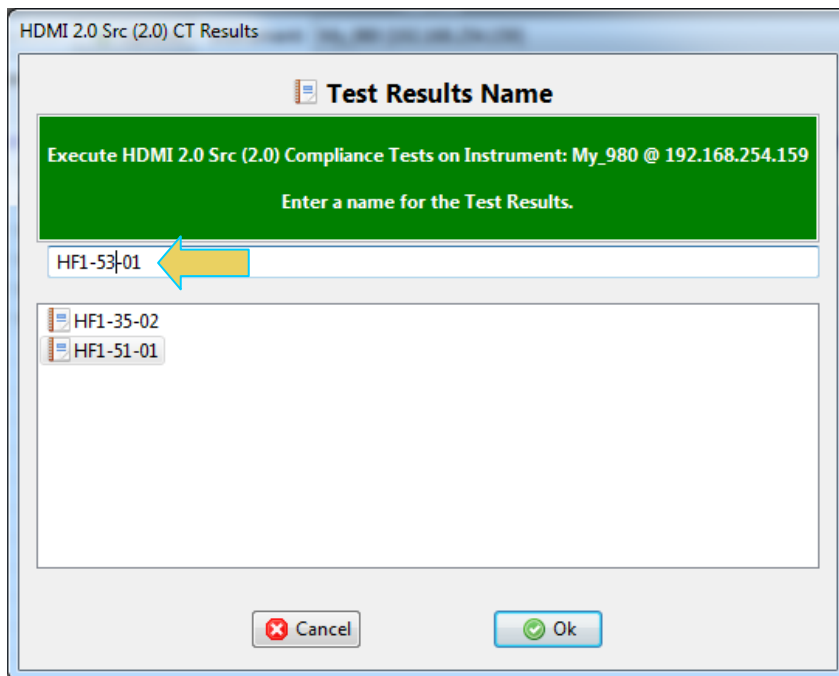
- 4.4 Click on Test Options / Preview tab and review the list of tests. Refer to the sample screen below.



4.5 Click on Execute tests activation button to initiate the test. Refer to the sample screen below.

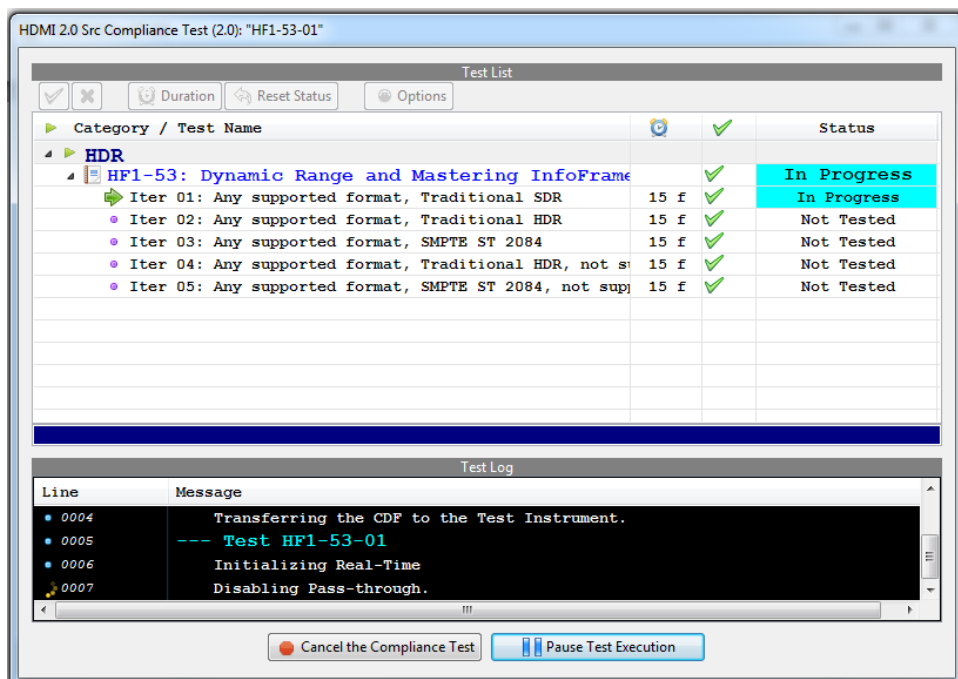


Note: You will be prompted with a dialog box to assign a name to the test results. Refer to the screen example below:

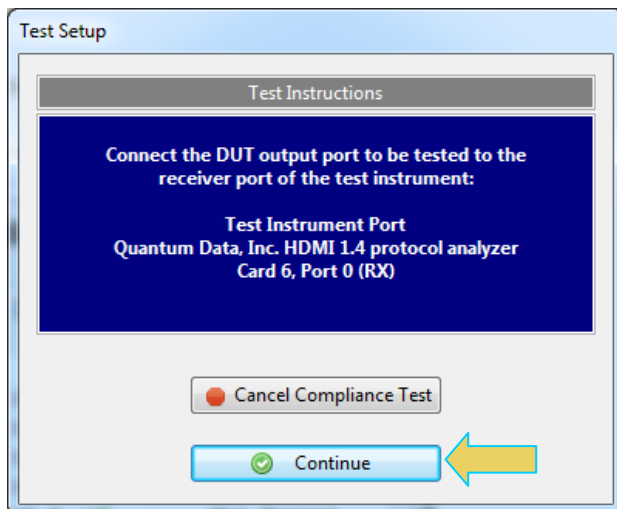


- 5 Enter a name, click OK and the test will begin.

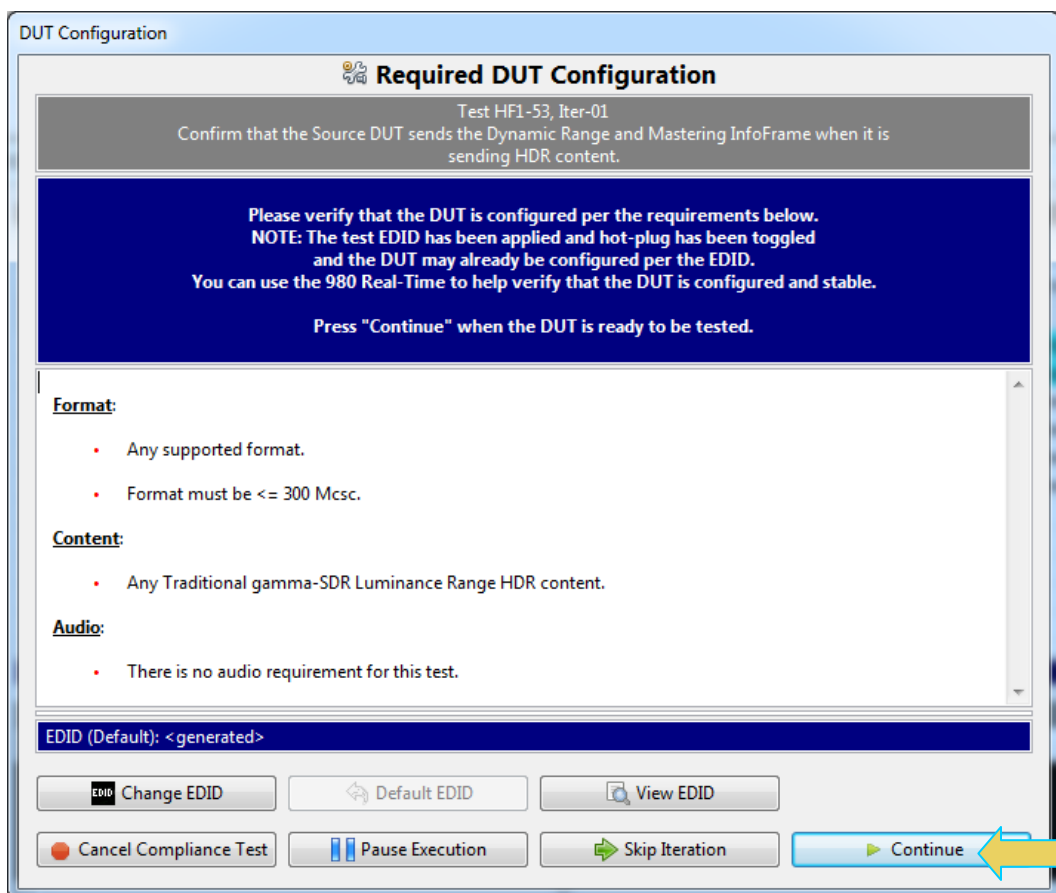
A Test Window will appear (below) indicating the progress of the test.



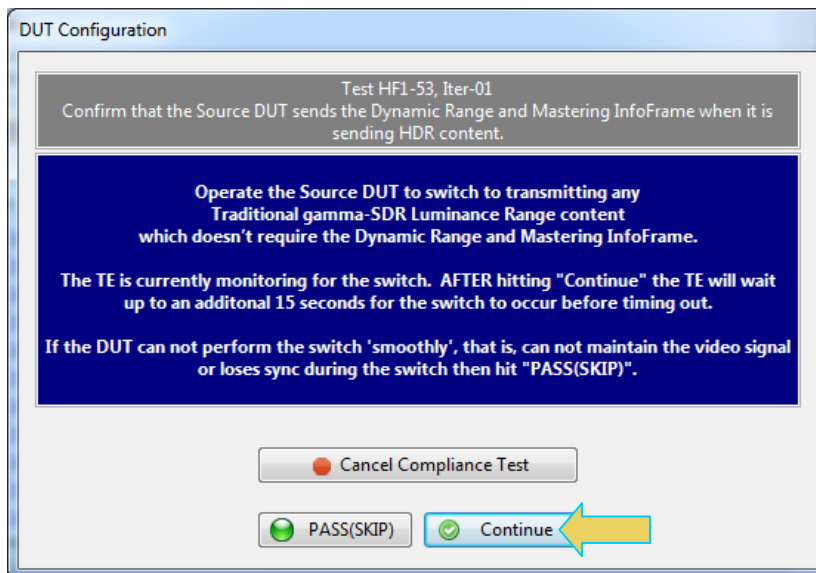
- 6 You will be prompted with a dialog box (below) instructing you to connect the DUT to the test equipment. Verify the connections and the press **Continue** to run the test.



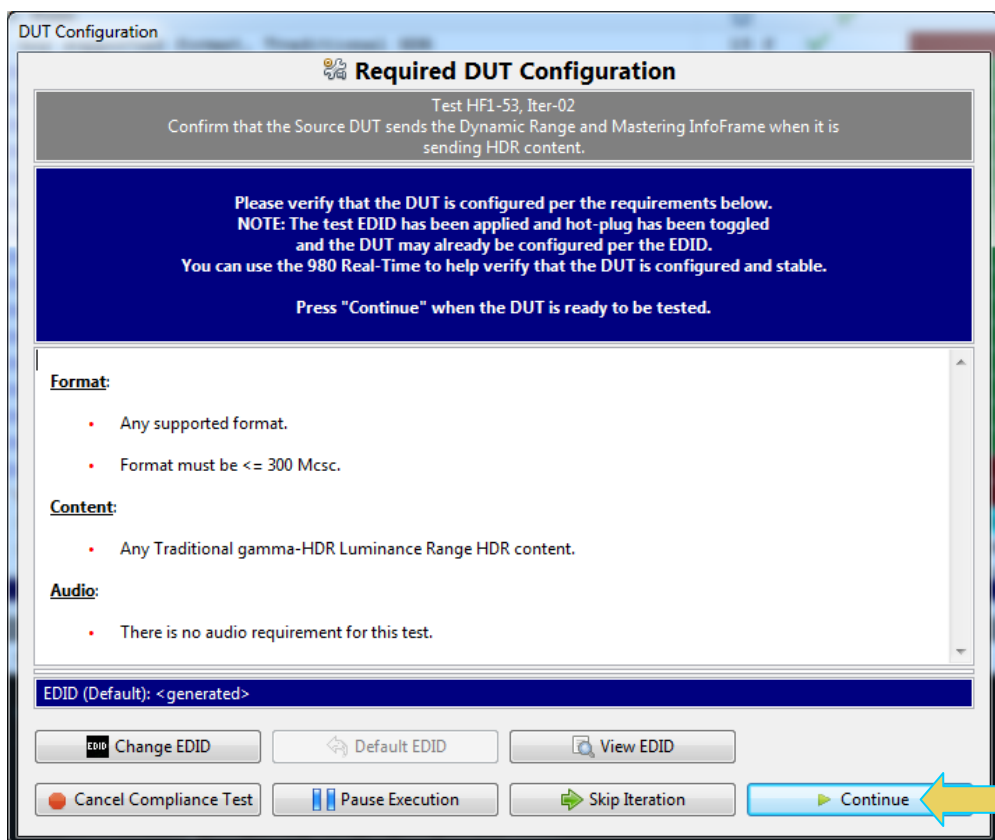
- 7 You will then be prompted with a series of dialog boxes informing you of the requirements of the source DUT for each distinct sub test. Verify that the source is outputting the required HDMI content and press Continue to run the test.



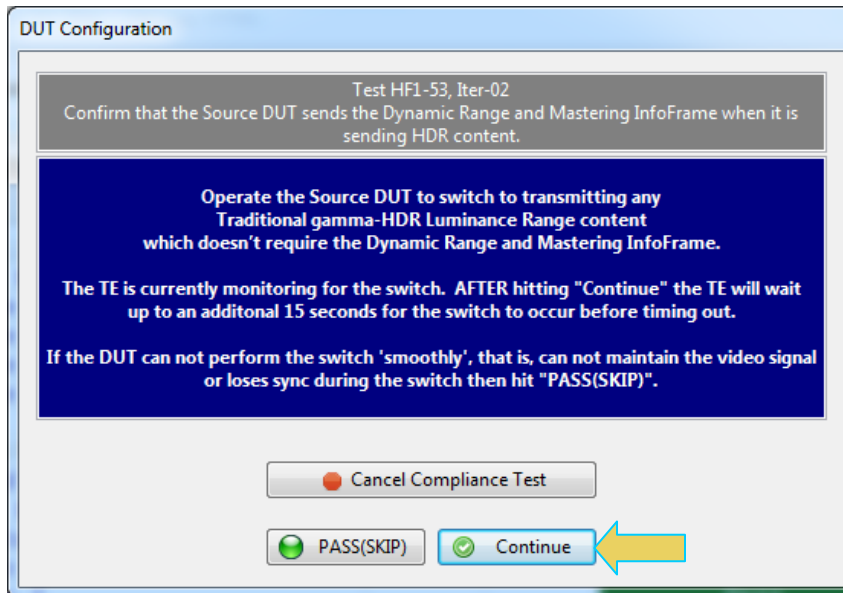
A DUT Configuration dialog box will appear. Follow the instructions on the dialog box and press either PASS/(SKIP) or Continue depending on the capabilities of the DUT.



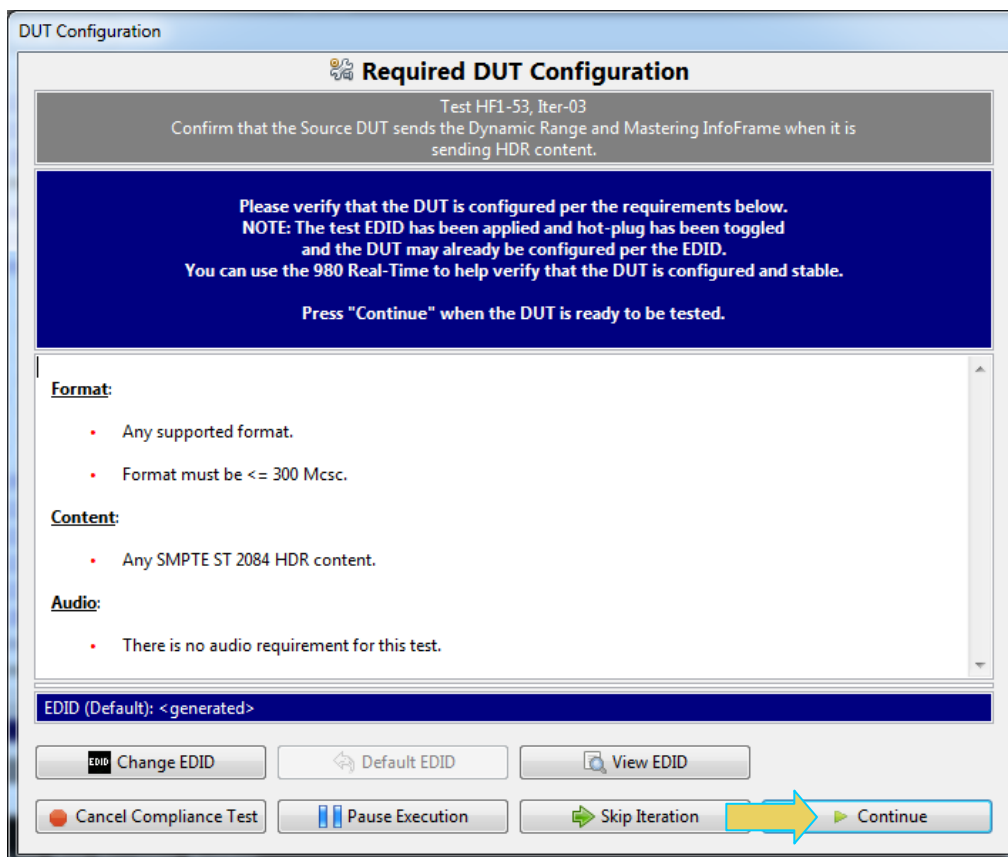
Another DUT Configuration dialog box will appear instructing you to configure the DUT to output a specific HDR content. Press Continue when the DUT is outputting the proper content.



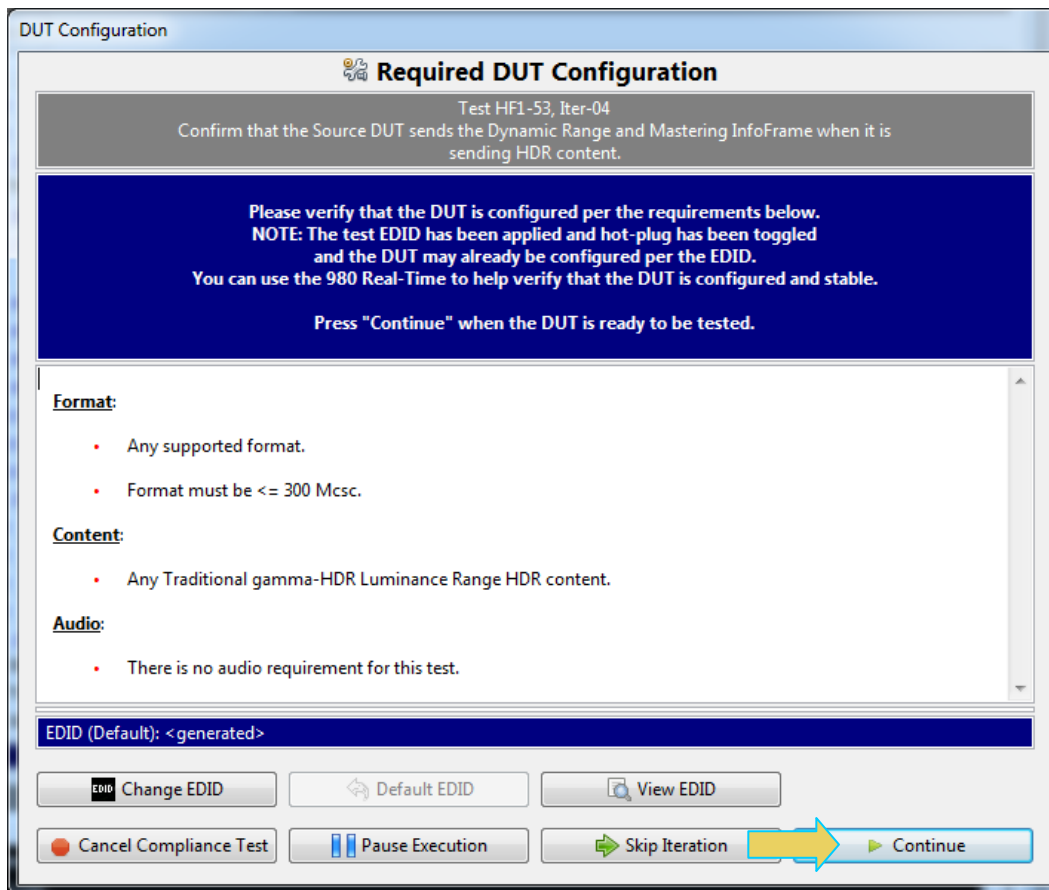
A DUT Configuration dialog box will appear. Follow the instructions on the dialog box and press either PASS/(SKIP) or Continue depending on the capabilities of the DUT.



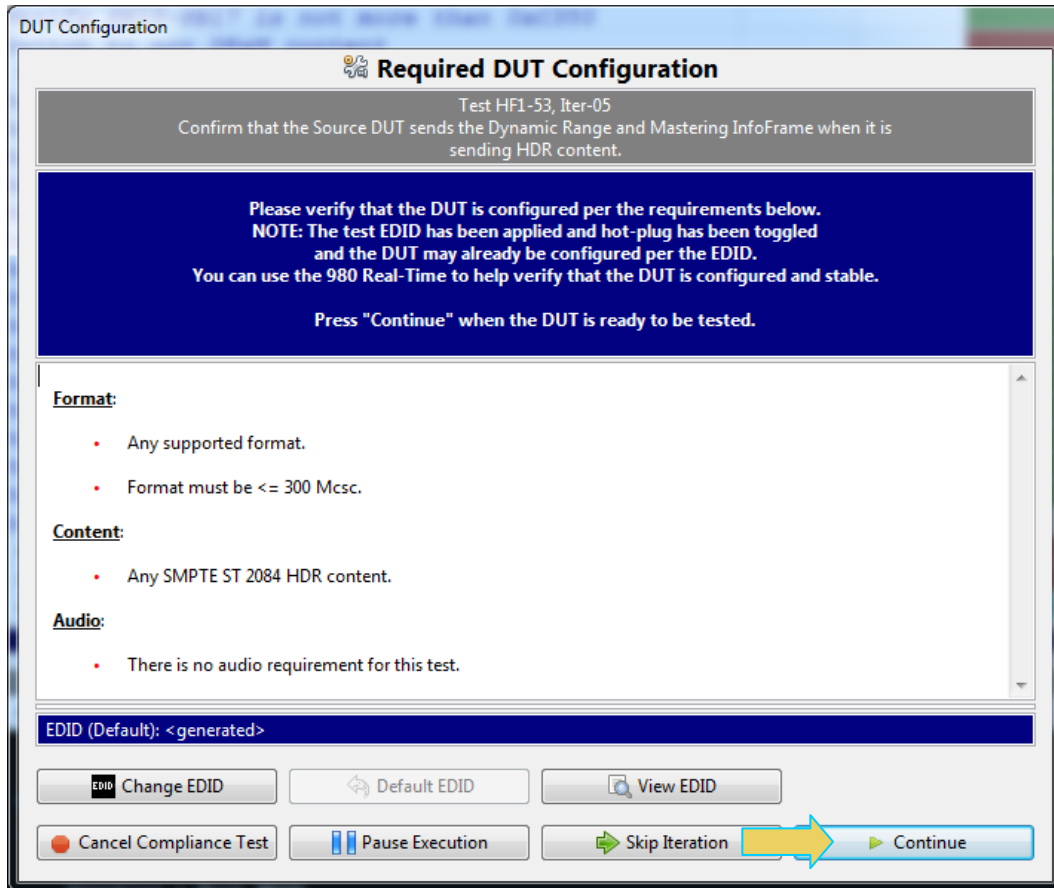
Another DUT Configuration dialog box will appear instructing you to configure the DUT to output a specific test pattern.



Another DUT Configuration dialog box will appear instructing you to configure the DUT to output a specific HDR content. Press Continue when the DUT is outputting the proper content.



Another DUT Configuration dialog box will appear instructing you to configure the DUT to output a specific HDR content. Press Continue when the DUT is outputting the proper content.



- 8 If the 980 HDMI 1.4 Protocol Analyzer's compliance test application reports PASS, then PASS. If the 980 HDMI 1.4 Protocol Analyzer's compliance test application reports FAIL, then FAIL.

